CIVIL AIM CONSULTANTS & ENGINEERS

(Building Geo-Tech & Highway Materials Testing Laboratory)

An ISO 9001-2015 Certified Company

NABL Accredited As Per ISO/IEC 17025:2017 Laboratory

Job No.: CACE/BBMP/NK/W.No.14/2022-23 Date: 21.01.2023

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE GRADED BITUMINOUS MACADAM MIX

AASHTO T 164 & AASHTO T 30

Client	: Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: Sri. Nagaraj K, Contractor, Bangalore.
Name of the Work	: Modified Estimate of De-silting and Re-setting of drain and Re asphalting to 5th B cross and 17th cross and other cross roads at MEI Layout in ward no 14 Bagalagunte , BBMP, Bangalore.
Date of Testing	21.01.2023

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	477.5	477
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	22.50	23.00
7. Bitumen content in %	4.50	4.60
8. Average	4.55	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	34.6	34.6	7.2	92.8	90 - 100
19	74.1	108.7	22.8	77.2	71 - 95
13.2	66.5	175.2	36.7	63.3	56 - 80
4.75	75	250.2	52.4	47.6	38 - 54
2.360	96.5	346.7	72.6	27.4	28 - 42
0.300	96.4	443.1	92.8	7.2	7 - 21
0.075	21.5	464.6	97.3	2.7	2 - 8

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	36.7	36.7	7.7	92.3	90 - 100
19	74.3	111	23.3	76.7	71 - 95
13.2	66.5	177.5	37.2	62.8	56 - 80
4.75	84.60	262.1	54.9	45.1	38 - 54
2.360	78.5	340.6	71.4	28.6	28 - 42
0.300	98.3	438.9	92.0	8.0	7 - 21
0.075	23.5	462.4	96.9	3.1	2 - 8

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಬಿಬಿಎಂಪಿ ದಾಸರಹಳ್ಳಿ ಉಪವಿಭಾಗ

Authorised Signatory

Note:

- This test report should not be reproduced except in full, without written approval of the laboratory.
- The results indicated above are based on the tests carried out on the samples collected at the site.
- Any Query regarding the report must be reported within 30 days from the date of testing

No. 01, Satvika Nilaya, Opp. Vidia Poorna Prajna School,
Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

CIVIL AIM CONSULTANTS & ENGINEERS

(Building Geo-Tech & Highway Materials Testing Laboratory)

An ISO 9001-2015 Certified Company

NABL Accredited As Per ISO/IEC 17025:2017 Laboratory

Job No.: CACE/BBMP/NK/W.No.14/2022-23 Date: 21.01.2023

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE GRADED BITUMINOUS MACADAM MIX

AASHTO T 164 & AASHTO T 30

Client	: Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: Sri. Nagaraj K, Contractor, Bangalore.
Name of the Work	: Modified Estimate of De-silting and Re-setting of drain and Re asphalting to 5th B cross and 17th cross and other cross roads at MEI Layout in ward no 14 Bagalagunte , BBMP, Bangalore.
Date of Testing	21.01.2023

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	476.5	477
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	23.50	23.00
7. Bitumen content in %	4.70	4.60
8. Average	**4.65**	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	34.7	34.7	7.3	92.7	90 - 100
19	74.1	108.8	22.8	77.2	71 - 95
13.2	65.1	173.9	36.5	63.5	56 - 80
4.75	84.3	258.2	54.2	45.8	38 - 54
2.360	76.5	334.7	70.2	29.8	28 - 42
0.300	96.1	430.8	90.4	9.6	7 - 21
0.075	21.1	451.9	94.8	5.2	2 - 8

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	36.6	36.6	7.7	92.3	90 - 100
19	73.2	109.8	23.0	77.0	71 - 95
13.2	66.9	176.7	37.0	63.0	56 - 80
4.75	83.50	260.2	54.5	45.5	38 - 54
2.360	78.9	339.1	71.1	28.9	28 - 42
0.300	98.9	438	91.8	8.2	7 - 21
0.075	22.3	460.3	96.5	3.5	2 - 8

Note:

- This test report should not be reproduced except in full, without written approval of the laboratory.
- The results indicated above are based on the tests carried out on the samples collected at the site.
- Any Query regarding the report must be reported within 30 days from the date of testing

ಸಹಾಯಕ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಭಿಯಂತರರು
ಬಿ ಬಿ ಎಂ ಪಿ ದಾಸರಹಳ್ಳಿ ಉಪ ವಿಭಾಗ

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

CIVIL AIM CONSULTANTS & ENGINEERS

(Building Geo-Tech & Highway Materials Testing Laboratory)

An ISO 9001-2015 Certified Company

NABL Accredited As Per ISO/IEC 17025:2017 Laboratory

Job No.: CACE/BBMP/NK/W.No.14/2022-23 Date: 19.01.2023

Aggregate Impact Value

Client	: Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: Sri. Nagaraj K, Contractor, Bangalore.
Name of the Work	Modified Estimate of De-silting and Re-setting of drain and Re asphalting to 5th B cross and 17th cross and other cross roads at MEI Layout in ward no 14 Bagalagunte , BBMP, Bangalore.
BIS Code	IS 2386(Part 4):1963
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	19.01.2023

Sl No.	Details	Test No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	380	378	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	84	85.5	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	296	292.5	
4	Aggregate Impact value = percent fines 100* (W_2/W_1) percent	22.11	22.62	22.36

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%(MORTH table no.500.16)

Note:

⇒ This test report should not be reproduced except in full, without written approval of the laboratory

⇒ The results indicated above are based on the tests carried out on the samples collected at the site.

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಬಿ ದಾಸರಹಳ್ಳಿ ಉಪ ವಿಭಾಗ

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

CIVIL AIM CONSULTANTS & ENGINEERS

(Building Geo-Tech & Highway Materials Testing Laboratory)

An ISO 9001-2015 Certified Company

NABL Accredited As Per ISO/IEC 17025:2017 Laboratory

Job No.: CACE/BBMP/NK/W.No.14/2022-23

Date : 19.01.2023

Aggregate Gradation Test

IS : 2386 Part I

Client	**: Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.**
Agency	**: Sri. Nagaraj K, Contractor, Bangalore.**
Name of the Work	Modified Estimate of De-silting and Re-setting of drain and Re asphalting to 5th B cross and 17th cross and other cross roads at MEI Layout in ward no 14 Bagalagunte , BBMP, Bangalore.
BIS Code	IS 2386(Part 1):1963
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	19.01.2023

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	421	8.42	8.42	91.58	90 - 100	
9.5	481	9.62	18.04	81.96	70 - 88	
4.75	645	12.90	30.94	69.06	53 - 71	
2.36	690	13.80	44.74	55.26	42 - 58	
1.18	521	10.42	55.16	44.84	34 - 48	
0.600	548	10.96	66.12	33.88	26 - 38	
0.300	491	9.82	75.94	24.06	18 - 28	
0.150	367	7.34	83.28	16.72	12 - 20	
0.075	489	9.78	93.06	6.94	4 - 10	

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	405	8.10	8.10	91.90	90 - 100	
9.5	549	10.98	19.08	80.92	70 - 88	
4.75	682	13.64	32.72	67.28	53 - 71	
2.36	533	10.66	43.38	56.62	42 - 58	
1.18	559	11.18	54.56	45.44	34 - 48	
0.600	546	10.92	65.48	34.52	26 - 38	
0.300	682	13.64	79.12	20.88	18 - 28	
0.150	198	3.96	83.08	16.92	12 - 20	
0.075	482	9.64	92.72	7.28	4 - 10	

Note:

⇒ This test report should not be reproduced except in full, without written approval of the laboratory.

⇒ Sampling & testing are carried out on the samples collected at the site.

⇒ Any objection regarding the report should be lodged within 30 days from the date of testing.

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

No. 01, Sahika Nilaya, Opp. Widia Poorna Prajna School,
Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

Job No.: CACE/BBMP/NK/W.No.14/2022-23 Date : 19.01.2023

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	: Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: Sri. Nagaraj K, Contractor, Bangalore.
Name of Work	Modified Estimate of De-silting and Re-setting of drain and Re asphalting to 5th B cross and 17th cross and other cross roads at MEI Layout in ward no 14 Bagalagunte , BBMP, Bangalore.
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Bituminous Concrete
Date of Testing	19.01.2023

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 500.16
1	Flakiness Index	12.9	13.2	Combined Flakiness & Elongation index Max 35%
2	Elongation Index	13.2	13.6	
	Combined Flakiness & Elongation index	26.10	26.80	

Note:

→ This test report should not be reproduced except in full, without written approval of the laboratory

→ The results indicated above are based on the tests carried out on the samples collected at the site.

→ Any Query regarding the report must be reported within 30 days from the date of testing.

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಟಿ ದಾಸರಹಳ್ಳಿ ಉಪ ವಿಭಾಗ

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

CIVIL AIM CONSULTANTS & ENGINEERS

(Building Geo-Tech & Highway Materials Testing Laboratory)

An ISO 9001-2015 Certified Company

NABL Accredited As Per ISO/IEC 17025:2017 Laboratory

Job No.: CACE/BBMP/NK/W.No.14/2022-23

Date : 21.01.2023

Specific Gravity And Water Absorption Test

Client	: Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: Sri. Nagaraj K, Contractor, Bangalore.
Name of the Work	Modified Estimate of De-silting and Re-setting of drain and Re asphalting to 5th B cross and 17th cross and other cross roads at MEI Layout in ward no 14 Bagalagunte , BBMP, Bangalore.
BIS Code	IS 2386(Part 3):1963
Type of Mix	Bituminous Concrete
Date of Testing	19.01.2023 to 21.01.2023

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2021	2023	2025	
2	Weight of basket suspended in water	W_2 g	752	754	756	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1269	1269	1269	
4	Weight of saturated surface dry aggregate in air	W_3 g	2016	2018	2020	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	747	749	751	
6	Weight of oven dried aggregate	W_4 g	2010	2011	2012	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.691	2.685	2.679	2.685
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.713	2.710	2.708	2.710
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.30%	0.35%	0.40%	0.35%

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%(MORTH table 500.16)

Note:

⇒ This test report should not be reproduced except in full, without written approval of the laboratory.

⇒ The results indicated above are based on the tests carried out on the samples collected at the site.

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ

CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

CIVIL AIM CONSULTANTS & ENGINEERS

(Building Geo-Tech & Highway Materials Testing Laboratory)

An ISO 9001-2015 Certified Company

NABL Accredited As Per ISO/IEC 17025:2017 Laboratory

Job No.: CACE/BBMP/GMD/W.No.15/2022-23 Date: 21.01.2023

TEST REPORT

Client	:	: Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	: Sri. Gnanendra Murthy M D. Contractor Bangalore
Name of the work	:	Modified Estimate of De-silting and Re-setting of drain and Re asphalting to 5th B cross and 17th cross and other cross roads at MEI Layout in ward no 14 Bagalagunte , BBMP, Bangalore.
IS Code	:	IS 73:2013, IS 1203:1978(RA 2008), IS 1205:1978(RA 2009), IS 1208:1978(RA 2009), IS 1209:1978(RA 2009)
Source of location	:	Hot mix Plant, Bangalore, VG 30
Date of testing	:	21.01.2023

The results of the tests conducted on the bitumen sample using for Bituminous Concrete

Sl. No	Description	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	51	Min 45
2	Softening point, ^{0}C	50	Min. 47
3	Ductility at 27^{0}C, cm	>103	Min. 40
4	Flash Point, ^{0}C	282	Min. 220

Note:

⇒ This test report shall not be reproduced except in full, without written approval of the laboratory.

⇒ The results indicated above are based on the tests carried out on the samples collected at the site.

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಟಿ ದಾಸರಹಳ್ಳಿ ಉಪ ವಿಭಾಗ

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

CIVIL AIM CONSULTANTS & ENGINEERS

(Building Geo-Tech & Highway Materials Testing Laboratory)

An ISO 9001-2015 Certified Company

NABL Accredited As Per ISO/IEC 17025:2017 Laboratory

Job No.: CACE/BBMP/NK/W.No.14/2022-23

Date: 23.01.2023

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	**Sri. Nagaraj K, Contractor, Bangalore.**
Name of the Work	:	Modified Estimate of De-silting and Re-setting of drain and Re asphalting to 5th B cross and 17th cross and other cross roads at MEI Layout in ward no 14 Bagalagunte , BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	23.01.2023

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	10.29	9.49	9 Kn (min)
2	Marshal flow, mm	3.71	2.34	2 – 4
3	Percent air voids in Mineral Aggregate	13.59	14.55	13 – 15
4	Voids in Compacted Mix	3.82	4.5	3 – 6
5	Percent Voids filled with Bitumen	70.49	71..10	65 - 75
6	Density, g/cc	2.23	2.26	--

Note:

⇒ This test report shall not be reproduced except in full, without written approval of the laboratory.

⇒ The results indicated above are based on the tests carried out on the samples collected at the site.

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

ಸಹಾಯಕ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಭಿಯಂತರರು

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

Job No.: CACE/BBMP/NK/W.No.14/2022-23 Date: 23.01.2023

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	**Sri. Nagaraj K, Contractor, Bangalore.**
Name of the Work	:	Modified Estimate of De-silting and Re-setting of drain and Re asphalting to 5th B cross and 17th cross and other cross roads at MEI Layout in ward no 14 Bagalagunte , BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	23.01.2023

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.55	10.82	9 Kn (min)
2	Marshal flow, mm	2.55	2.56	2 – 4
3	Percent air voids in Mineral Aggregate	13.44	14.25	13 – 15
4	Voids in Compacted Mix	3.89	4.51	3 – 6
5	Percent Voids filled with Bitumen	69.33	69.88	65 - 75
6	Density, g/cc	2.21	2.23	--

Note:

⇒ This test report shall not be reproduced except in full, without written approval of the laboratory.

⇒ The results indicated above are based on the tests carried out on the samples collected at the site.

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಜೆ ದಾಸರಹಳ್ಳಿ ಉಪ ವಿಭಾಗ

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

CIVIL AIM CONSULTANTS & ENGINEERS
(Building Geo-Tech & Highway Materials Testing Laboratory)
An ISO 9001-2015 Certified Company
NABL Accredited As Per ISO/IEC 17025:2017 Laboratory

Job No.: CACE/BBMP/NK/W.No.14/2022-23 Date: 24.01.2023

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer**, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	**Sri. Nagaraj K, Contractor, Bangalore.**
Name of the Work	:	Modified Estimate of De-silting and Re-setting of drain and Re asphalting to 5th B cross and 17th cross and other cross roads at MEI Layout in ward no 14 Bagalagunte , BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	24.01.2023

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.65	9.85	9 Kn (min)
2	Marshal flow, mm	3.33	2.54	2 – 4
3	Percent air voids in Mineral Aggregate	13.65	14.25	13 – 15
4	Voids in Compacted Mix	3.87	4.61	3 – 6
5	Percent Voids filled with Bitumen	70.21	71.51	65 - 75
6	Density, g/cc	2.25	2.26	--

Note:

⇒ This test report shall not be reproduced except in full, without written approval of the laboratory.

⇒ The results indicated above are based on the tests carried out on the samples collected at the site.

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಉ ದಾಸರಹಳ್ಳಿ ಉಪ ವಿಭಾಗ

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

Job No.: CACE/BBMP/NK/W.No.14/2022-23 Date: 24.01.2023

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	**Sri. Nagaraj K, Contractor, Bangalore.**
Name of the Work	:	Modified Estimate of De-silting and Re-setting of drain and Re asphalting to 5th B cross and 17th cross and other cross roads at MEI Layout in ward no 14 Bagalagunte , BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	24.01.2023

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.48	9.95	9 Kn (min)
2	Marshal flow, mm	3.12	2.97	2 – 4
3	Percent air voids in Mineral Aggregate	13.22	14.35	13 – 15
4	Voids in Compacted Mix	3.63	4.66	3 – 6
5	Percent Voids filled with Bitumen	69.29	68.25	65 - 75
6	Density, g/cc	2.25	2.25	--

Note:

⇒ This test report shall not be reproduced except in full, without written approval of the laboratory.

⇒ The results indicated above are based on the tests carried out on the samples collected at the site.

⇒ Any Query regarding the report must be reported within 30 days from the date of testing

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ದಾಸರಹಳ್ಳಿ ಉಪವಿಭಾಗ

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

CIVIL AIM CONSULTANTS & ENGINEERS

(Building Geo-Tech & Highway Materials Testing Laboratory)

An ISO 9001-2015 Certified Company

NABL Accredited As Per ISO/IEC 17025:2017 Laboratory

Job No.: CACE/BBMP/NK/W.No.14/2022-23 Date : 23.01.2023

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	Sri. Nagaraj K, Contractor, Bangalore.
NAME OF THE WORK	Modified Estimate of De-silting and Re-setting of drain and Re asphalting to 5th B cross and 17th cross and other cross roads at MEI Layout in ward no 14 Bagalagunte , BBMP, Bangalore.
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	23.01.2023

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	469.5	469
3. Weight of Asphalt and Mineral matter Extracted, g	30.5	31
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	30.5	31
7. Bitumen content in %	6.10	6.20
8. Average	6.15	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	17.5	17.5	3.7	96.3	90 - 100
9.5	68.9	86.4	18.4	81.6	70 - 88
4.75	92.6	179	38.1	61.9	53 - 71
2.36	42.5	221.5	47.2	52.8	42 - 58
1.18	36.8	258.3	55.0	45.0	34 - 48
0.600	50.9	309.2	65.9	34.1	26 - 38
0.300	46.3	355.5	75.7	24.3	18 - 28
0.150	35.8	391.3	83.3	16.7	12 - 20
0.075	46.9	438.2	93.3	6.7	4 - 10

SIEVE SIZE mm	Test 2				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	18.2	18.2	3.9	96.1	90 - 100
9.5	62.8	81	17.3	82.7	70 - 88
4.75	90.9	171.9	36.7	63.3	53 - 71
2.36	46.5	218.4	46.6	53.4	42 - 58
1.18	43.8	262.2	55.9	44.1	34 - 48
0.600	52.4	314.6	67.1	32.9	26 - 38
0.300	49.3	363.9	77.6	22.4	18 - 28
0.150	35.6	399.5	85.2	14.8	12 - 20
0.075	40.8	440.3	93.9	6.1	4 - 10

Note:

1. This test report should not be reproduced except in full, without written approval of the laboratory
2. The results indicated above are based on the tests carried out on the samples collected at the site.
3. Any Query regarding the report must be reported within 30 days from the date of testing

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

CIVIL AIM CONSULTANTS & ENGINEERS

(Building Geo-Tech & Highway Materials Testing Laboratory)

An ISO 9001-2015 Certified Company

NABL Accredited As Per ISO/IEC 17025:2017 Laboratory

Job No.: CACE/BBMP/NK/W.No.14/2022-23 Date : 23.01.2023

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	Sri. Nagaraj K, Contractor, Bangalore.
NAME OF THE WORK	Modified Estimate of De-silting and Re-setting of drain and Re asphalting to 5th B cross and 17th cross and other cross roads at MEI Layout in ward no 14 Bagalagunte , BBMP, Bangalore.
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	23.01.2023

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	469	469
3. Weight of Asphalt and Mineral matter Extracted, g	31	31
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	31	31
7. Bitumen content in %	6.20	6.20
8. Average	6.20	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.17
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	15.5	15.5	3.3	96.7	90 - 100
9.5	69.1	84.6	18.0	82.0	70 - 88
4.75	92.1	176.7	37.7	62.3	53 - 71
2.36	42.2	218.9	46.7	53.3	42 - 58
1.18	37	255.9	54.6	45.4	34 - 48
0.600	51.1	307	65.5	34.5	26 - 38
0.300	46.5	353.5	75.4	24.6	18 - 28
0.150	35.1	388.6	82.9	17.1	12 - 20
0.075	47.1	435.7	92.9	7.1	4 - 10

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.17
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	16.3	16.3	3.5	96.5	90 - 100
9.5	62.5	78.8	16.8	83.2	70 - 88
4.75	91.1	169.9	36.2	63.8	53 - 71
2.36	46.7	216.6	46.2	53.8	42 - 58
1.18	43.5	260.1	55.5	44.5	34 - 48
0.600	52.1	312.2	66.6	33.4	26 - 38
0.300	49.1	361.3	77.0	23.0	18 - 28
0.150	35.2	396.5	84.5	15.5	12 - 20
0.075	40.5	437	93.2	6.8	4 - 10

Note:

- This test report should not be reproduced except in full without written approval of the laboratory
- The results indicated above are based on the tests carried out on the samples collected at the site.
- Any Query regarding the report must be reported within 30 days from the date of testing

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

CIVIL AIM CONSULTANTS & ENGINEERS

(Building Geo-Tech & Highway Materials Testing Laboratory)

An ISO 9001-2015 Certified Company

NABL Accredited As Per ISO/IEC 17025:2017 Laboratory

Job No: CACE/BBMP/NK/W No 14/2022-23 Date : 24.01.2023

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	Sri. Nagaraj K, Contractor, Bangalore.
NAME OF THE WORK	Modified Estimate of De-silting and Re-setting of drain and Re asphalting to 5th B cross and 17th cross and other cross roads at MEI Layout in ward no 14 Bagalagunte , BBMP, Bangalore.
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	24.01.2023

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	469.5	470
3. Weight of Asphalt and Mineral matter Extracted, g	30.5	30
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	30.5	30
7. Bitumen content in %	6.10	6.00
8. Average	6.05	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.17
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	14.2	14.2	3.0	97.0	90 - 100
9.5	66.2	80.4	17.1	82.9	70 - 88
4.75	91.3	171.7	36.6	63.4	53 - 71
2.36	45.9	217.6	46.3	53.7	42 - 58
1.18	36.1	253.7	54.0	46.0	34 - 48
0.600	55.9	309.6	65.9	34.1	26 - 38
0.300	43.1	352.7	75.1	24.9	18 - 28
0.150	35.1	387.8	82.6	17.4	12 - 20
0.075	41.5	429.3	91.4	8.6	4 - 10

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.17
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	14.5	14.5	3.1	96.9	90 - 100
9.5	65.9	80.4	17.1	82.9	70 - 88
4.75	92.5	172.9	36.8	63.2	53 - 71
2.36	45.9	218.8	46.6	53.4	42 - 58
1.18	48.9	267.7	57.0	43.0	34 - 48
0.600	56.9	324.6	69.1	30.9	26 - 38
0.300	47.1	371.7	79.1	20.9	18 - 28
0.150	38.1	409.8	87.2	12.8	12 - 20
0.075	31.5	441.3	93.9	6.1	4 - 10

Note:

- This test report should not be reproduced except in full, without written approval of the laboratory
- The results indicated above are based on the tests carried out on the samples collected at the site.
- Any Query regarding the report must be reported within 30 days from the date of testing

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

CIVIL AIM CONSULTANTS & ENGINEERS

(Building Geo-Tech & Highway Materials Testing Laboratory)

An ISO 9001-2015 Certified Company

NABL Accredited As Per ISO/IEC 17025:2017 Laboratory

Job No.: CACE/BBMP/NK/W.No.14/2022-23

Date : 24.01.2023

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	Sri. Nagaraj K, Contractor, Bangalore.
NAME OF THE WORK	Modified Estimate of De-silting and Re-setting of drain and Re asphalting to 5th B cross and 17th cross and other cross roads at MEI Layout in ward no 14 Bagalagunte , BBMP, Bangalore.
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	24.01.2023

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	469.5	469.5
3. Weight of Asphalt and Mineral matter Extracted, g	30.5	30.5
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	30.5	30.5
7. Bitumen content in %	6.10	6.10
8. Average	6.10	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	13.7	13.7	2.9	97.1	90 - 100
9.5	64.9	78.6	16.7	83.3	70 - 88
4.75	91.3	169.9	36.2	63.8	53 - 71
2.36	48.2	218.1	46.5	53.5	42 - 58
1.18	36.8	254.9	54.3	45.7	34 - 48
0.600	57.6	312.5	66.6	33.4	26 - 38
0.300	43.3	355.8	75.8	24.2	18 - 28
0.150	35.9	391.7	83.4	16.6	12 - 20
0.075	40.1	431.8	92.0	8.0	4 - 10

SIEVE SIZE mm	Test 2				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	13.9	13.9	3.0	97.0	90 - 100
9.5	65.2	79.1	16.8	83.2	70 - 88
4.75	92.1	171.2	36.5	63.5	53 - 71
2.36	45.1	216.3	46.1	53.9	42 - 58
1.18	48.9	265.2	56.5	43.5	34 - 48
0.600	56	321.2	68.4	31.6	26 - 38
0.300	44.8	366	78.0	22.0	18 - 28
0.150	37.1	403.1	85.9	14.1	12 - 20
0.075	31.6	434.7	92.6	7.4	4 - 10

Note:

þ This test report should not be reproduced except in full without written approval of the laboratory.

þ The results indicated above are based on the tests carried out on the samples collected at the site.

þ Any Query regarding the report must be reported within 30 days from the date of testing

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com